Research Lab Sheet

Lab Name	**High Energy Physics**
Academic Year	**2021-2022**

Basic Information	
Department	**Physics**
Location	**4th flour**
Total area (m^2)	**16**

Lab Members				
No. of Prof.	**No. of Ass. Prof.**	**No. of Lect.**	**No. of Ass. Lect. & Demonst.**	**No. of technicians**
3	**1**		**4**	**0**

Staff members

#	Name	Scientific degree	e-mail	Specializations	C.V
1	Samy El-Sharqawy Abd Allah	Prof.	s.abdallah@science.sohag.edu.eg	**High Energy Physics**	https://staffsites.sohag-univ.edu.eg/uploads/48/1537889253%20-%20%D8%A3.%20%D8%AF.%20%D8%B3%D8%A7%D9%85%D9%8A%20%D8%A7%D9%84%D8%B4%D8%B1%D9%82%D8%A7%D9%88%D9%8A.pdf
2	Nabil Nour El Deen Abd Allah	Prof.	Nabil.122@yahoo.com	**High Energy Physics**	https://staffsites.sohag-univ.edu.eg/uploads/325/1537884269%20-%20CV.pdf
3	Mahmoud Mohery Sayed	Prof.	mmohery@gmail.com	**High Energy Physics**	
4	Albiomy Mohamed	Ass. Prof.	ahmedalbiomy@yahoo.com	**High Energy Physics**	

Ass. Lecturers & Demonstrators

#	Name	Scientific degree	e-mail	Specializations	
1	Kamal Mohamed Telep	Ass. Lecturers	k.telep@science.sohag.edu.eg	Astrophysics	
2	Mohamed Mekhimer Elzouhry	Ass. Lecturers	elkaseemy@gmail.com	**High Energy Physics**	
3	Mahmoud Haroun	Demonstrators	Mahmoudharoun2@gmail.com	**High Energy Physics**	http://staffsites.sohag-univ.edu.eg/cv/1759?p=cv

	Mohamed				
4	Mohamed Gamal Ahmed	Demonstrators	m.gamal@science.sohag.edu.eg	**High Energy Physics**	

Theses produced by the Lab			
M Sc Thesis			
#	**Degree**	**Title**	**Approval date**
1	**Ass. Prof.**	دراسة توزيعات الطاقة والزوايا للجسيمات الرمادية ذات السرعات المتوسطة الناتجة من تصادم الهادرونات ذات الطاقات العالية مع انوية العناصر	1986
2	Prof.	دراسة السريان الجماعي للمادة النووية في التصادمات المركزية انوية الماغنسيوم 24 مع المستحلب النووي عند كمية تحرك 4.5 مليار الكترون فولت/سرعة الضوء للنيوكلون.	1989
3	**Ass. Prof.**	دراسة تصادمات انوية الماغنسيوم 24 مع المستحلب النووي عند كمية تحرك 4.5 مليار الكترون فولت/سرعة الضوء للنيوكلون.	1988
4		دراسة التفاعلات النووية غير المرنة في انوية الليثيوم 6 وانوية المستحلبات النووية عند كمية تحرك 4.5 مليار الكترون فولت/سرعة الضوء للنيوكلون."	1993
5	**Ass. Prof.**	دراسة التركيب العنقودي لانوية الليثيوم 6 عن طريق دراسة تفاعلات	1995

		مع انوية المستحلبات النووية عند الطاقات العالية."	
6	**Ass. Lecturers**	دراسة شظايا أنوية الليثيوم 7 الناتجة من تفاعلاتها عند الطاقات العالية مع أنوية المستحلبات النووية	2015
7		خصائص الجسيمات المشحونة الناتجة من تفاعل انوية الليثيوم 7 مع المستحلب النووي عند طاقة 3 مليار الكترون فولت/سرعة الضوء	2015
Ph.D. Thesis			
1	**Ass. Prof.**	دراسة تصادمات انوية الماغنسيوم 24 مع انوية المستحلبات النووية عند جميع قيم بارامترات التصادم و كذلك التصادمات المركزية بينهما وعند كمية تحرك لانوية الماغنسيوم الساقطة مقدارها 4.5 مليار الكترون فولت/سرعة الضوء للنيوكلون."	1991
2	Prof.	بعض سمات التعنقد و السريان الجماعي في تفاعلات النواة - النواة عند 4.5 مليار الكترون فولت/سرعة الضوء للنيوكلون	1992
3	**Ass. Prof.**	تشظي انوية الماغنسيوم 24 و السيليكون 28 في المستحلب النووي عند كمية تحرك 4.5 مليار الكترون فولت/سرعة الضوء للنيوكلون."	1992
4	**Ass. Lecturers**	تحليلات زمنية لأشعة اكس المنبعثه من ثنائيات الثقوب السوداء والنجوم النيوترونية	2021

Articles produced by the Lab		
#	Title	Journal information
1	A Temporal Scale to Track the Spectral Transitions in Low-Mass X-ray Binaries	Monthly Notices of the Royal Astronomical Society
2	Erratum: A minimal timescale for the continuum in 4U 1608–52 and Aql X-1	Monthly Notices of the Royal Astronomical Society
3	A minimal time-scale for the continuum in 4U 1608-52 and Aql X-1”	Monthly Notices of the Royal Astronomical Society
4	”The multiplicity characteristics of 7Li-Em interactions as a function of noninteracting projectile nucleons “	International Journal of Modern Physics E Vol. 29, No. 8 (2020) 2050063
5	An optimized search for exoplanets with Kepler data	Frontiers in Theoretical and Applied Physics/UAE 2017 (FTAPS 2017)
6	Single Folding Cluster Potential for P+12CElastic Scattering	journal of Radiation and Nuclear Applications (JRNA 041917H)
7	OS of Neutron Matter and Neutron Star Properties.	Journal of Nuclear and Particle Physics 2015
8	Microscopic and bulk properties of symmetric nuclear and pure neutron matter with chiral N3LO nucleon-nucleon force.	International Journal of Scientific & Engineering Research, Volume 6, Issue 1, January 2015

9	Multiplicity distributions of shower particles and target fragments in 7 Li–Em collisions at 3 A GeV/c.	Journal of Physics, Indian Academy of Sciences Vol. 81, No. 2 August 2013 pp. 287–293
10	Various flows of black and grey particles produced in Mg-emulsion collisions at 4.5-A-GeV/c	CPC (HEP & NP), 2001, 35(1) : 40-43 , Chinese Physics C , vol.35,No.1, Jan., 2011
11	Intermittency of Target Fragments in ^{24}Mg-AgBr Interactions at 4.5-A-GeV/c.	Chinese Journal of Physics Vol.47, NO.4 , August 2009.
12	Target black fragment flows in magnesium-emulsion collisions at 4.5-A-GeV/c.	Radiat.Meas.43:S234-S238, (2008).
13	Photon emission in Au-Au (Pb-Pb) collisions at s**(1/2) = 62.4-	Nucl.Phys.Proc.Suppl.175-176:533-536, (2008).
14	Integral frequency distribution of projectile alpha fragments in nuclear multi-fragmentations at intermediate and high energies.	Nucl. Phys. Proc. Suppl. 175-176:54-57, (2008).
15	Angular Distributions of Target Fragments In ^{84}Kr-Em and ^{16}O-Em Collisions at High Energies	Acta Phys. Pol., 37 (9), 2695(2006).
16	Dependence of Black Fragments Azimuthal and Projected Angular distributions on Polar Angle In Silicon- Emulsion Collisions at 4.5 A GeV/c.	Phys. Rev. C69,057601 (2004).
17	Charged-Particle (pseudo)rapidity Distributions In e^+e^-, pp and AA Collisions at High Energies	Phys. Rev. C69,034905(2004).
18	Particles Multiplicity Distributions In Silicon-Emulsion Collisions at 4.5A GeV/c.	Phys. Rev. C67, 4, 047603 (2003)
19	Azimuthal Correlations of Secondary Particles of ^{24}Mg Nuclei with Emulsion at 4.5A GeV/c	Int. J. Mod. Phys. E12(6),781-792(2003).
20	Kaons Pseudorapidity Distribution In pA and	Int.J.Mod.Phys.E12(6),771-780(2003).

	AA Collisions at AGS and SPS Energies.	
21	Pseudorapidity Distribution of Shower Particles In Relativistic Nucleus-Nucleus Collisions	Can. J. Phys. 81, 1271 (2003).
22	Angular Distributions of Target Black Fragments In Nucleus-Nucleus Collisions at High Energy	Int. J. Mod. Phys. E12(5), 718-723(2003).
23	Non-statistical Fluctuations of Target Fragments Emitted in High Energy Nucleus-Nucleus Collisions	Can. J. Phys. 80, 119 (2002).
24	. Study of Forward–Backward Shower Particles and Slow Protons Production from the Interactions of ^{7}Li With Emulsion Nuclei at 3A GeV/c	Int. J. Mod. Phys. E11(2),105 (2002).
25	Systematic Comparison of the Experimental Data with Fritiof Model in Nucleus-Nucleus Interaction with Light and Heavy Target Nuclei in Nuclear Emulsion at 4.5A GeV/c.	Int. J. Mod. Phys. E11(2),161 (2002).
26	Characteristics of Relativistic Charged Particles Produced in ^{24}Mg-Emulsion Interactions at 4.5A GeV/c.	Int. J. Mod. Phys. E10, 55 (2001).
27	Projected Angular Distributions and Reaction Plane Flow of Black Fragments Produced In Silicon- Emulsion Collisions at 4.5 A GeV/c.	Chin. J. Phys., 44 (3),202(2006).
28	Particle Production In Nucleus-Nucleus Collisions Over an Energy Range from 1A GeV to 100A TeV	Chin. J. Phys., 44 (3),189(2006).
29	Characteristics of Black Particles and Forward-Backward Correlations In High Energy Nucleus-Nucleus Collisions	Chin. J. Phys., 42 (6),684(2004).
30	Angular Distributions of Target Fragments In	Chin. J. Phys., 42(2), 152 (2003)

	Magnesium- Emulsion Collisions at High Energy	
31	Projected Angular Distributions and Reaction Plane Flow of Black Fragments Produced In Silicon- Emulsion Collisions at 4.5 A GeV/c.	Chin. J. Phys., 44 (3), 202 (2006).
32	Multiplicity and Transverse Energy Distributions In Au-Au and Pb-Pb Collisions at 32High Energy.	J. Phys. 41(6),618(2003).
33	Features of the compound Multiplicity of the Interaction of ^{24}Mg and ^{28}Si Ions with Emulsion Nuclei at 4.5A GeV/c.	Turk. J. Phys. 25(2), 109 (2001).
34	Structures and Angular Distributions of Slow and Relativistic Charged Particles Produced in ^{7}Li-Emulsion Interactions at 3A GeV/c.	Phys. Atomic. Nucl., 64, 910 (2001).
35	Multiplicity of Secondary Particles and Fragmentation in Nuclear Interaction Induced by ^{22}Ne and ^{32}S Nuclei with Emulsion at (4.1-4.5)A GeV/c	Czech.J.Phys. 51(11),1189(2001).
36	.Characteristics of the Total Disintegration of AgBr Nuclei by ^{24}Mg and ^{32}S Nuclei at 4.5A GeV/c	Can. J. Phys. 78, 915 (2000).
37	Determination of the Reaction Plane and Collective Flow in Nucleus–Nucleus Interactions at 4.5A GeV/c	J. Phys. Soc. Jap. 69(4), 1068 (2000).
38	Azimuthal Alignment of Projectile Fragments for Nucleus-Nucleus Emulsion Collisions at (4.1-4.5) A GeV/c.	,Nucl. Sci. J. 38(2), 85 (2001).
39	Characteristics of Charged Projectile Fragments from ^{24}Mg – Emulsion Interactions at 4.5A GeV/c.	Nuovo Cimento 112A(9), 941 (1999).

40	Characteristics of Inelastic Interactions of ^{7}Li with Emulsion Nuclei at 3A GeV/c.	Physica Scripta. Vol. 54, 436 (1996).
41	Multiplicity Correlation of Heavy-Ion Interactions at 3 and 4.5A GeV/c.	Korea Phys. Soc.,23(4), 462 (1995).
42	Multiplicity Characteristics of Particles Emitted in 4.5A GeV/c 28Si-Emulsion Collisions	Turk. J. Phys., 19, 1170 (1995).
43	Interactions of Relativistic ^{24}Mg Nuclei with Emulsion Nuclei at 4.5A GeV/c per Nucleon	Int. J. Mod. Phys. E4,(4), 815 (1995).
44	Correlation Among Particles Produced In Inelastic Collisions Of Relativistics Nuclei With Emulsion At (4.1- 4.5)A GeV/c.	Nucl. Sci. J. 31 (4), 239 (1994).
45	Multiplicity Distribution of Shower Particles Produced in Interactions of (4.1–4.5)AGeV/c Li^6, Li^7, Mg^{24} and Si^{28} with Emulsion	. Indian J. Pure & App. Phys. 32, 702, (1994).
46	Correlation in Inelastic Collisions of Relativitic Nuclei with Emulsion at (4.1 – 4.5) A GeV/c	No.2, 279 (1994).
47	Angular Distributions of Secondary Relativistic charged Particles Produced In Interactions of Mg24 and Li7 In Emulsion at (3-4.5) A GeV/c.	Particle World, 4(2), 7(1994)
48	Complete Destruction of Ag(Br) Emulsion Nuclei Induced by 4.5A GeV/c Si28 Ions	Physica Scripta, Vol. 47, 501 (1993).
49	Fragmentation of ^{28}Si Nuclei in Emulsion at 4.5A GeV/c	Nucl. Sci. J. 30(3), 167 (1993).
50	Analysis of Characteristics of ^{24}Mg-Emulsion Interactions at 4.5A GeV/c According to Cascade and Fritiof Models	Egypt. J. Phys.,35(3), 467 (2004).
51	Sideward Flow of Target Fragments in Central Collision of Mg^{24}+AgBr at 4.5A GeV/c	Sohag Pure & Applied Science Bull., (1989).
53	Characteristics of Particles in High Energy Nucleus-Nucleus Collisions	Fourth Saudi Conference Contribution of Science Faculties in the Development Process

		of KSA, March 23-24/2010.
54	Identification of Hadronic and Baryonic Clusters in Central Collisions of Mg^{24} and Si^{28} with Ag(Br) Emulsion Nuclei at 4.5A GeV/c.	22nd International Cosmic Ray Conference, 11-23 August, Dublin, (1991). HE. 1.1.-15, Vol. 4, 48-52(1991).

Lab instruments						
#	Device	quantity	Quality			
			Good	Poor	Need maintenance	malfunction
1	Microscope Olympas BH-2	1	√			
2	ميكروسكوب ضوئي Leica	4	√			
3	inspector	2	√			
4	STOMAHESIVE	1	√			
5	Light meter	2	√			

Instruments Description	
Device image	Description /use
توضع صورة للجهاز	وصف بسيط لاستخدامات الجهاز

The success of the BH series led to the development and launch of the BH2 in the 1980s. The company developed the BH2 series ahead of the AH2 series, building a microscope that approached the optical performance of overseas products and providing even greater freedom in modular combinations.

The objective lens is the heart of a microscope. Before the BH2 series, microscopes tended to have short barrels with a focal length of 36.65 mm and a mechanical tube length of 160 mm. Olympus then developed a long barrel (LB) objective lens series (1x–100x oil) with a focal length of 45 mm and a mechanical tube length of 160 mm that could be used for everything from regular brightfield observations to polarization, fluorescence, and phase contrast microscopy. As a result, the BH2 series captured the highest share of the global market. This helped put the company's main microscopy revenue stream on more solid ground. In 1981, Olympus developed the IC series, featuring a long barrel objective lens for industrial applications and the UMA univsersal vertical illuminator for additional industrial applications. The company then developed improved models for the BX and CX series, utilizing a UIS objective lens.

	The Leica microscope features a binocular head with 10x eyepieces. It comes with 4x, 10x, 40x, and 100x oil objectives
	The Inspector Alert™ Handheld Nuclear Radiation Monitor improves safety in laboratories and in the field through quick analysis and determination of radiation levels. The handheld monitor measures alpha, beta, gamma and x-radiation. Its safety-first calibration feature can eliminate exposure for personnel. The Inspector Alert quickly notifies first responders to the presence of harmful levels of nuclear radiation. Easy to read digital display shows a wide variety of readings: mR/hr, CPM, CPS, or µSv/hr.

	• Improves safety in laboratories and in the field • Audible and visual alerts • Anti-saturation circuitry • Safety-first calibration feature can eliminate personnel exposure during calibration • Automatically compensates for GM tube dead time
	It is used to measure radiation

	Light Meter is a stable, safe, reliable mini digital light meter, widely used in lighting, agriculture and animal husbandry, mining enterprises, laboratory, office, household and more sectors. Features • Precise optical sensor • Split type with extendable cable • LCD screen • Sampling time: 0.5s • Lux/Fc options • Max/Min mode • CE certification

Evaluate the fulfillment of lab to appropriateness of areas, building installations, facilities and human resources standards

Areas of assessment		Indicators	Yes	Somewhat	No
Floor area and capacity	1	Adequacy of the total capacity of the lab for the number of researcher (1).		√	
Windows and doors	2	Availability of windows for adequate ventilations.	√		
	3	Ease of use of windows.	√		
	4	There are two exits (doors) at least (2).		√	

	5	There are signs to locate directions of emergency exits			√
Equipment	6	Appropriate temperature during the lectures (3).	√		
	7	Availability of good ventilation (4).	√		
	8	The existence of adequate lighting (4).	√		
	9	Lab is connected to the Internet	√		
	10	The existence of directions inside the Lab showing entrances and emergency exits.			√
Security and Safety	11	Existence of firefighting equipment near the hall (5).	√		
	12	Cleanliness of the room.	√		